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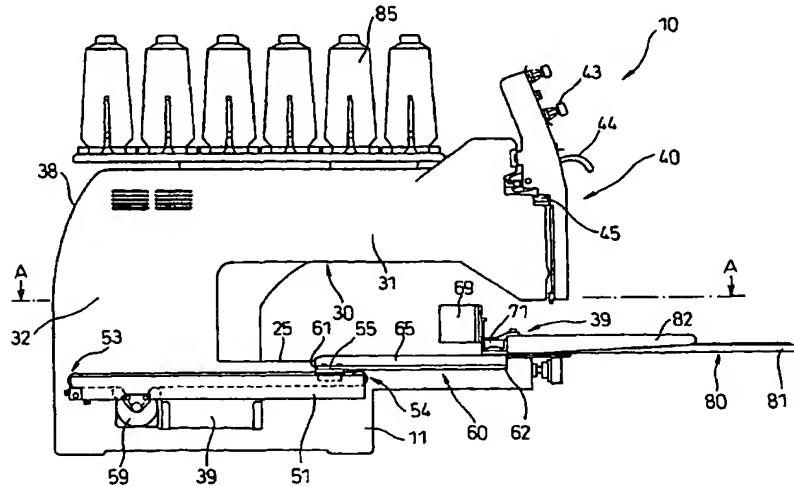
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(54) Title: SEWING MACHINE



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(57) Abstract: A sewing machine comprises an arm including a vertical portion and a horizontal portion having at least one sewing needle mounted thereon, a bed extending in parallel to the horizontal portion under the horizontal portion of the arm, two first rails extending in parallel to the bed in the neighborhood of the side portion of the vertical portion of the arm, first carriages adapted to slide on the first rails, respectively, and a second rail connected to the first carriages and perpendicular to the first rails, wherein the distance between the two first rails is shorter than or equal to the length of the second rail, the sewing machine further comprising a second carriage adapted to slide on the second rail, and an embroidery frame unit mounted on the second carriage on the side portion of the second rail located far from the vertical portion of the arm, wherein the first carriages are located on one side of the second rail, and the embroidery frame unit is located on the other side of the second rail. The sewing machine is thus capable of embroidery without being limited by the distance between the rails.

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 692 449 A (MEIER WILLI) 2 December 1997 (1997-12-02) column 2, line 43 -column 3, line 40; figures 1-3 ----	1
A	US 5 005 501 A (KITA FUJI) 9 April 1991 (1991-04-09) column 2, line 59 -column 3, line 29; figures 1,2,6,7 ----	1,8
A	US 4 280 420 A (HAMAJIMA SHIGEMITSU ET AL) 28 July 1981 (1981-07-28) column 2, line 65 -column 4, line 47; figures 1,3 ----	1,8
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 067 262 A (MARUZEN SEWING MACHINE) 22 December 1982 (1982-12-22) page 14, line 14 -page 18, line 5; figures 1,2 -----	8

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5692449	A 02-12-1997	DE 29514286 U1 SE 508910 C2 SE 9602948 A	26-10-1995 16-11-1998 07-03-1997
US 5005501	A 09-04-1991	JP 1967175 C JP 2191488 A JP 6093946 B DE 3932226 A1 GB 2224290 A , B	18-09-1995 27-07-1990 24-11-1994 05-04-1990 02-05-1990
US 4280420	A 28-07-1981	JP 1233183 C JP 55142758 A JP 59007822 B JP 55155898 U JP 55159894 U	26-09-1984 07-11-1980 21-02-1984 10-11-1980 17-11-1980
EP 0067262	A 22-12-1982	JP 57200596 U JP 57200597 U JP 57200599 U JP 1460937 C JP 57210051 A JP 63009070 B JP 1460938 C JP 57210052 A JP 63009071 B AR 229530 A1 AU 552384 B2 AU 7776981 A BR 8107790 A CA 1181290 A1 EP 0067262 A1 FI 813721 A KR 8600402 B1 NO 813955 A , B, NZ 199057 A PT 74068 A , B TR 22646 A US 4424758 A DK 514681 A ES 507593 D0 ES 8307945 A1	20-12-1982 20-12-1982 20-12-1982 14-10-1988 23-12-1982 25-02-1988 14-10-1988 23-12-1982 25-02-1988 15-09-1983 29-05-1986 23-12-1982 12-04-1983 22-01-1985 22-12-1982 17-12-1982 17-04-1986 17-12-1982 24-08-1984 01-12-1981 01-02-1988 10-01-1984 17-12-1982 01-11-1982 01-11-1983